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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* HEIDI D. ZHANG, ROBERT F. LAWRENCE,  
GILBERT M. LIMA, STEVEN C. MILLER and ANNE L. HALL

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Appeal 2009-002391  
Application 10/616,319  
Technology Center 3700

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Decided: February 24, 2010

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Before: WILLIAM F. PATE III, JOHN C. KERINS and  
MICHAEL W. O'NEILL, *Administrative Patent Judges.*

PATE III, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF CASE

An Appeal Brief was filed on November 30, 2007 appealing from the final rejection mailed October 2, 2007. An Examiner's Answer was mailed on April 15, 2008, in response to the Appeal Brief of November 30, 2007.

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This case was administratively remanded to the Examiner on April 22, 2008, to correct the Real Party in Interest and Evidence Relied Upon sections of the Answer. Appellants filed a Reply Brief on April 25, 2008, responding to the Answer mailed on April 15, 2008. Appellants filed a second Reply Brief on July 10, 2008, in response to an Examiner's Answer mailed June 2, 2008. Appellants acknowledge that the Examiner's Answer mailed June 2, 2008, was substantially identical to the Examiner's Answer mailed April 15, 2008, however the Examiner's Answer mailed June 2, 2008 was indexed as a "miscellaneous communication" and mailed to Appellants without being recorded in the Image File Wrapper. A supplemental Examiner's Answer was mailed on July 16, 2008, having corrected Real Party in Interest and Evidence Relied Upon sections, again responding to the Appeal Brief filed November 30, 2007. Appellants filed an additional Reply Brief on August 19, 2008, again acknowledging that the Examiner's Answer mailed July 16, 2008, was identical to the Examiner's Answer mailed June 2, 2008, which, in turn, only differed from the Examiner's Answer mailed on April 15, 2008, by correcting the Real Party in Interest and Evidence Relied Upon sections.

For purposes of this Appeal we rely upon the corrected Examiner's Answer mailed July 16, 2008, which is responsive to the Appeal Brief filed November 30, 2007. We also rely on the Reply Brief filed on April 25, 2008, which, although technically responsive to the Examiner's Answer mailed April 15, 2008, according to the Reply Briefs filed July 10, 2008, and August 19, 2008, fully addresses any substantive issues raised in the Examiner's Answer mailed July 16, 2008.

Appellants Appeal under 35 U.S.C. § 134 from a rejection of claims 1-65. App. Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

The claims are directed to an ultrasound breast screening device.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. An ultrasound breast imaging assembly comprising:

first and second compression plates that are angled with respect to one another;

a breast compression area defined between said first and second compression plates;

at least one pivot assembly allowing relative motion between said first and second compression plates, said at least one pivot assembly being operatively connected to each of said first and second compression plates; and

an ultrasound probe having an active matrix array (AMA) positioned on one of said first and second compression plates, said ultrasound probe being configured to translate over said one of said first and second compression plates.

#### REFERENCES

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Shmulewitz	US 5,479,927	Jan. 2, 1996
Moore	US 5,553,111	Sep. 3, 1996
Adamkowski	US 5,706,327	Jan. 6, 1998
Giger	US 5,984,870	Nov. 16, 1999
Wang	US 2003/0007598 A1	Jan. 9, 2003

## REJECTIONS

The Examiner has withdrawn the rejection of claims 2 and 25 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. Ans. 8.

Claims 1-17, 19-39, 41-44, 46-50, 52-62, 64 and 65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Shmulewitz and Adamkowski<sup>1</sup>. Ans. 5.

Claims 18, 40 and 63 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shmulewitz, Adamkowski and Moore. Ans. 7.

Claim 45 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Shmulewitz, Adamkowski and Giger. Ans. 7.

Claim 51 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Shmulewitz, Adamkowski and Wang. Ans. 8.

## ISSUES

Claims 1, 24 and 52 are argued as a group. App. Br. 15. We select claim 1 as the representative claim, and claims 24 and 52 will stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(vii). In the Final Rejection mailed October 2, 2007, the Examiner rejected claim 1 over Shmulewitz and Adamkowski. The Examiner found that Shmulewitz taught the basic structure of the claimed device and Adamkowski demonstrated that making

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<sup>1</sup> Since claims 19, 41 and 64 depend from claims 18, 40, and 63, respectively, these claims should have apparently been grouped with the rejection of claims 18, 40 and 63 as being unpatentable over Shmulewitz, Adamkowski and Moore. *See* Ans. 6-7; Final Rej. 5. For purposes of this

a compression plate pivot was a known technique. The Examiner concluded that although Adamkowski taught a pivot attached to only a single compression plate instead of *each* compression plate, it would have been an obvious matter of design choice to apply Adamkowski's technique of making a compression plate pivot to both of Shmulewitz's compression plates. Final Rej. 4-5. Appellants disputed this conclusion. App. Br. 15-21. The Examiner maintained the rejection of claim 1 as being unpatentable over Shmulewitz and Adamkowski in the Answer but no longer contended that it would have been an obvious matter of design choice to apply Adamkowski's technique of making a compression plate pivot to both of Shmulewitz's compression plates. Ans. 5-6. Instead the Examiner found that, contrary to the Examiner's finding in the Final Rejection, Adamkowski did, in fact, teach a pivot operatively attached to each of the compression plates. Ans. 5-6. Since the Examiner's finding was based upon a new and broader construction of the phrase "operatively connected," although based upon the same prior art, the Examiner denominated the rejection of claim 1 in the Answer a "new" grounds of rejection in order to provide Appellants with a fair opportunity to respond. Ans. 5-6. Appellants chose to maintain the Appeal and contend that the Examiner relied upon an unreasonably broad definition of the term "operatively connected" to support a rejection of claim 1. Reply Br. 2-4. In light of these contentions we do not reach the issue of whether it would have been an obvious matter of design choice to apply Adamkowski's technique of making a compression plate pivot to both of Shmulewitz's compression plates. The sole issue presented regarding claim

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Appeal, claims 19, 41 and 64 are treated as rejected with parent claims 18, 40 and 63 as being unpatentable over Shmulewitz, Adamkowski and Moore.

1 is whether the Examiner erred by relying upon an unreasonably broad definition of the term “operatively connected.”

It is noted that Appellants have changed the claim grouping in the Reply Brief from the claim grouping in the Appeal Brief in response to the new grounds of rejection, separately arguing claims 2 and 25. Reply Br. 4. The issues raised regarding claims 2 and 25 are substantially the same as those raised regarding claims 6, 29 and 54. Appellants contend that it is unreasonable for the Examiner to interpret Adamkowski’s frame 30 and pivot 34a as the claimed first pivot assembly operatively connected to the first compression plate while interpreting Adamkowski’s frame 30 and pivot 34b as the claimed second pivot assembly operatively connected to the second compression plate. App. Br. 22; Reply Br. 4-5. Thus, the next issue for our consideration is whether the Examiner erred by unreasonably interpreting Adamkowski’s frame 30 and pivot 34a as the claimed first pivot assembly operatively connected to the first compression plate while interpreting Adamkowski’s frame 30 and pivot 34b as the claimed second pivot assembly operatively connected to the second compression plate.

Claims 5, 28 and 53 are argued as a group. App. Br. 21; Reply Br. 5. We select claim 5 as the representative claim, and claims 28 and 53 will stand or fall with claim 5. Appellants contend that “while Adamkowski discloses springs 42 . . . these springs are not used to connect the compression surface 32 to the breast supporting surface 20” and therefore cannot reasonably be read as a ““spring member that connects [one] compression plate to [another] compression plate.”” App. Br. 21; (Emphasis Original.) Reply Br. 6. Thus the next issue for our consideration is whether the Examiner erred by finding Adamkowski would have taught a

“spring member that connects [one] compression plate to [another] compression plate.”

Regarding claims 18, 40 and 63, the issue raised by Appellants is whether the Examiner erred by finding that Moore teaches the claimed ““swivel member that connects said at least one pivot assembly and first and second compression plates to said upright member.”

Claims 45 and 51 are mentioned under a separate subheading. However, no substantive arguments are presented regarding these claims. Appellants do not dispute any of the Examiner’s findings regarding Giger or Wang.

Separate arguments are not provided regarding claims 3, 4, 7-17, 19-23, 26, 27, 30-39, 41-51, 55-62, 64 and 65.

#### FINDINGS OF FACT

1. Shmulewitz, as discussed in the present Specification, discloses a breast screening device wherein breast tissue is compressed between two compressive members 15, 20 which are maintained in a parallel relationship. Spec. 2-4; Shmulewitz col. 7, ll. 3-20, 35-47; Shmulewitz fig. 1.
2. Adamkowski teaches a breast screening device that improves upon breast screening devices having rigidly fixed compression surfaces by providing a pivoting compression surface 32. Col. 1, ll. 36-45; col. 2, ll. 44-65; Fig. 2.
3. Adamkowski teaches compression surface 32 is attached to the frame 30 at pivots 34a and 34b. The frame is attached to a paddle stage 22 which is

slidably attached to an imaging arm 14 which carries image receiver/supporting surface 20. Col. 2, ll. 44-65; fig. 1.

4. Adamkowski further teaches a spring 42 is positioned between a lever 36 attached to the compression surface 32 and a spring retaining member 40 which is attached to a cross member 38 that spans frame 30. This arrangement provides a compressive bias toward the breast tissue. Col. 2, l. 67 – col. 3, l. 34; figs. 3-5.
5. Moore teaches that in order to obtain better X-ray visualization of breast tissue it is desirable to either translate (fig. 2A) or twist (fig. 2B) either or both plates 14, 16 in order to shear breast tissue positioned therebetween. Col. 7, l. 63 – col. 8, l. 16.
6. The Specification describes a swiveling member 80 that may rotate pivot assembly 56 and compression plates 36 and 40 through the K direction with respect to axis 82. Spec. 20 para. [0060]; fig. 9.

#### PRINCIPLES OF LAW

“[T]he PTO applies to the verbiage of the proposed claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in applicant’s specification.”

*In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). During examination of a patent application, pending claims are given their broadest reasonable construction consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404-05 (CCPA 1969); *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). The ordinary and customary meaning of a claim term

is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1319 (Fed. Cir. 2005) (en banc).

## ANALYSIS

The accepted definition of the term “connected” is restricted to neither a direct nor an indirect connection, and it is therefore applicable to an indirect connection. *Ullstrand v. Coons*, 147 F.2d 698, 700, 64 USPQ 580, 581 (CCPA 1945). Appellants’ proposed definition of the term “connect” to mean “to become joined” does not preclude such an interpretation, i.e., to become indirectly joined. *See Reply Br. 2-3*. Appellants have provided no reason why “operatively connected” excludes a connection that is indirectly made between Adamkowski’s pivot mechanism 30, 34a, 34b, and the lower compressive support surface 20. The fact that additional components may be interposed between the pivot assembly and second compression plate does not prevent the pivot assembly from being interpreted as “operatively connected” to the second compression plate. *See Fact 3*. Appellants have failed to establish that the Examiner relied upon an overly broad and unreasonable interpretation of the phrase “operatively connected” in claim 1.

Regarding the requirement of claims 2, 6, 25, 29 and 54 for a first and second pivot assembly respectively attached to first and second compression plates, we cannot agree with the Examiner that Adamkowski discloses such a structure according to the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art. One of ordinary skill in the art would not have understood frame 30, and pivots 34a and 34b as two separate pivot assemblies. One of ordinary

skill in the art would have understood these structures, which cooperate to pivot compression plate 32, as forming a single pivot assembly. The Examiner arbitrarily deems particular components of this pivot assembly as separate assemblies only to meet the claim limitations. Such an interpretation is not consistent with the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art. Appellants have convinced us that it was unreasonable for the Examiner to interpret Adamkowski's frame 30 and pivot 34a as the claimed first pivot assembly operatively connected to the first compression plate while interpreting Adamkowski's frame 30 and pivot 34b as the claimed second pivot assembly operatively connected to the second compression plate.

Regarding claim 5, Appellants' argument is based upon the presumption that Adamkowski's springs 42 must be read as the claimed "spring member." We disagree with this premise. The term "spring member" reasonably encompasses more than a "spring." Components such as the crossbar 38 upon which the springs 42 act are also reasonably read as "spring members." Since this structure connects, albeit indirectly, compression plate 32 to support surface 20, it meets the limitation in question. *See* Facts 3 and 4. We note that the Examiner cites only to spring 42 and not any specific cooperating structure. However, the thrust of the rejection remains the same—Adamkowski teaches the claimed "spring member."

Regarding claims 18, 40 and 63, the term "swivel" is used throughout the specification in a manner that is consistent with the term's ordinary meaning. A "swivel mechanism" describes a mechanism which rotates an

entire assembly, in this case both compression plates, while maintaining the relative orientation of the components of that assembly. *See Fact 6.* The embodiment of figure 2A of Moore, cited by the Examiner, clearly does not “swivel” because there is no rotation of any kind. The embodiment of figure 2B, also cited by the Examiner, rotates one or both plates to alter the relative orientation of those plates. This is contrary to the meaning of the term “swivel” as it would have been understood by one of ordinary skill in the art when read in light of the Specification. Reading a claim in light of the Specification, to thereby interpret the meaning of limitations explicitly recited in the claim, is a quite different thing from reading limitations of the Specification into a claim, to thereby narrow the scope of the claim by implicitly adding disclosed limitations which have no express basis in the claim. *In re Prater*, 415 F.2d 1393, 1404-05, (CCPA 1969). Furthermore, while Moore expresses the desirability of twisting plates 14, 16 in devices such as Shmulewitz’s and Adamkowski’s, Moore does not elaborate on any particular structure or “mechanism” that may be employed for achieving this goal. *See Facts 1, 2, and 5.* It is conjecture to conclude that Moore employs a swivel mechanism without any disclosure of the structural elements employed by Moore. For these reasons the Examiner erred by finding that Moore teaches the claimed ““swivel member that connects said at least one pivot assembly and first and second compression plates to said upright member.”

#### CONCLUSIONS OF LAW

The Examiner did not err by relying upon an overly broad and unreasonable interpretation of the phrase “operatively connected” in claim 1.

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The Examiner erred by unreasonably interpreting Adamkowski's frame 30 and pivot 34a as the claimed first pivot assembly operatively connected to the first compression plate while interpreting Adamkowski's frame 30 and pivot 34b as the claimed second pivot assembly operatively connected to the second compression plate. The Examiner did not err by finding Adamkowski teaches a "spring member that connects [one] compression plate to [another] compression plate." The Examiner erred by finding that Moore teaches the claimed "swivel member that connects said at least one pivot assembly and first and second compression plates to said upright member."

## DECISION

For the reasons indicated above:

The Examiner's rejection of claims 1, 24 and 52, along with dependent claims 3, 4, 7-17, 20-23, 26, 27, 30-39, 42-51, 55-62, and 65 as being unpatentable over Shmulewitz and Adamkowski is affirmed.

The Examiner's rejection of claims 2, 6, 25, 29 and 54 as being unpatentable over Shmulewitz and Adamkowski is reversed.

The Examiner's rejection of claims 5, 28 and 53 as being unpatentable over Shmulewitz and Adamkowski is affirmed.

The Examiner's rejection of claims 18, 40 and 63, along with dependent claims 19, 41 and 64 as being unpatentable over Shmulewitz, Adamkowski and Moore is reversed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). See 37 C.F.R. § 1.136(a)(1)(iv) (2009).

AFFIRMED-IN-PART

Vsh

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